

## **A baseline study on groundwater quality of the tourist island, Pulau Tiga, Sabah, Malaysia.**

### **ABSTRACT**

Pulau Tiga is a group of small islands located at Kimanis Bay off the western coast of Sabah. This preliminary study on groundwater of Pulau Tiga is undertaken to provide guidance and baseline data for future references. An understanding of the chemistry and behavior of water in the island aquifer is crucial for the determination of the availability of freshwater, and also to create a platform for considering proper management and successful remediation of groundwater resources on island to prevent over exploitation of such limited resources. Groundwater samples were collected from five wells on Pulau Tiga to understand the groundwater chemistry based on various ion composition ( $\text{Ca}^{2+}$ ,  $\text{Mg}^{2+}$ ,  $\text{Na}^{+}$ ,  $\text{K}^{+}$ ,  $\text{HCO}_3^{-}$ ,  $\text{SO}_4^{2-}$ ,  $\text{Cl}^{-}$ ,  $\text{NO}_3^{-}$ ), in situ parameters such as DO (Dissolved oxygen), EC (Electrical conductivity), TDS (Total dissolved solids), pH, salinity and temperature. Even though groundwater in Pulau Tiga was constantly subject to abstraction activities for its tourism purposes, preliminary results showed that the groundwater still remains freshwater type. The Piper diagram suggested that the groundwater facies generally range from Ca- $\text{HCO}_3$  to Ca-Cl waters type. The processes influencing the groundwater chemistry are mainly dissolution of minerals.

**Keyword:** Groundwater; Pulau Tiga; Hydrochemical; Hydrochemical facies; Groundwater chemistry.